Testimony of

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before

Energy and Technology Committee

March 20, 2012

regarding

Governor's Bill No. 23 - An Act Enhancing Emergency Preparedness and Response

Raised Bill No. 5544 - An Act Concerning Storm Preparation and Emergency Response

Raised Bill No. 450 - An Act Concerning Energy Conservation and Renewable Energy

Introduction

The Connecticut Center for Advanced Technology, Inc. ("CCAT"), offers this testimony for Governor's Bill No. 23 - An Act Enhancing Emergency Preparedness and Response, Raised Bill. No. 5544 - An Act Concerning Storm Preparation and Emergency Response, and Raised Bill No. 450 - An Act Concerning Energy Conservation and Renewable Energy.

CCAT is a nonprofit corporation that provides services and resources to entrepreneurs, businesses, industry, academia, and government. The Energy Initiative of CCAT has been established to improve the economic competitiveness of the region through solutions that lower energy costs and increase long-term energy reliability. The Energy Initiative of CCAT provides assistance to small and medium sized manufacturers regarding energy use and development; undertakes energy planning, including assisting municipalities with local energy assurance plans for mission critical facilities; and promotes renewable energy, including fuel cells and sustainable fuels.

These Bills contain provisions that are favorable to the development of multiple microgrids and the use of renewable distributed energy generation, such as fuel cells and other advanced technologies that are or could be made in Connecticut. The components of these Bills that appear favorable include:

- ***Enhances energy reliability:***
  The proposed Bills provide opportunities to enhance energy reliability through the development of microgrids that could serve critical facilities and municipalities within the state. CCAT is assisting municipalities within the state with support from the U.S. Department of Energy to identify mission critical facilities and to assess opportunities for the deployment of distributed generation to enhance energy reliability, improve environmental performance, and lower energy costs. These proposed Bills could provide the necessary incentives and policy framework to execute planning initiatives with the deployment of clean and renewable distributed generation that would also serve to reinforce the electric grid.

- ***Provides opportunities for the development and use of Class I renewable energy:***
  The proposed Bills contain provisions for the development and use of Class I renewable energy. These provisions would provide incentives that could facilitate the development of renewable distributed energy technologies to meet municipal renewable energy goals and Connecticut's renewable portfolio standards (RPS) requirements.

- ***Create jobs and encourage economic development:***
  The proposed Bills contain provisions that would help deploy renewable fuel cell technology. The deployment of renewable distributed fuel cell facilities will create jobs and increase opportunities for economic development. Fuel cells can efficiently provide electricity and thermal energy as combined heat and power applications to reduce energy costs for end users. Furthermore, large fuel cells for stationary power are principally developed and manufactured in this state, and provide significant economic benefits to the State and region.

- ***Effective merger of energy management with environmental benefits:***
  The deployment of renewable distributed energy technologies will provide additional public dividends to improve air quality. For example, the potential average annual emissions reductions for each MW of fuel cell capacity, compared to existing New England fossil fuel electric generation, would be approximately 1,200 lbs of NOx, 1,700 lbs of SOx, and 3.5 million lbs of CO2.

CCAT does have some concerns:

In Bill 450, Sec 3, CCAT supports the proposed establishment of a natural gas transportation pilot program, but suggests that it also include hydrogen and hydrogen-fueled vehicles. This provision will provide an opportunity for the development and use of "Zero" emission vehicles that could be fueled by renewable resources.

In Bill 450, Sections 13, 14 (15) (b), and 14 (15) (c) are potentially inconsistent with Bills 23 and 5544 with provisions that allow microgrid development with a Class III technology to offset Class I requirements. The effect of this may be to reduce Class I development with more conventional Class III technology. Moreover, there may be an unintended and less desirable rush by developers to meet Class I requirements with development of conventional Class III technology.

In Bill 5544, Section 12 (4) (b), the "repurposing" is of high interest, but it may detract from the mission to develop new microgrids with new Class I renewable generation designed for controlled islanding on the grid.

In Bill 5544, Section 12 (4) (c), the proposed preference for projects to be completed on or before October 1, 2012, may be challenging and may result in a rush for less than optimal projects. The development of

microgrids with the deployment of renewable distributed energy technology must be planned carefully and thoughtfully developed to:

- Identify locations on the grid with appropriate end users and a need for potential voltage stabilization;
- Assess the potential for controlled islanding with power flow including active and reactive power needs;
- Engineer the interconnection of selected distributed generation assets to the grid with appropriate protection gear, breakers, relays, and transfer trip scheme for operation; and
- Develop a community and user protocol for operation, monitoring, and refinement.

Conclusion

CCAT is supportive of the concepts raised in these Bills that would encourage the development of microgrids and Class I renewable distributed energy generation in the State. The proposed microgrid grant and loan pilot program would be of high public benefit to support the stabilization of the electric grid and the development of renewable and advanced distributed energy technologies on a community level. The concepts raised in these bills could:

- Improve energy reliability to municipalities, businesses, and the public;
- Improve efficiency and operation of the electric grid through improved coordination between transmission and generation facilities;
- Improve cost control/reduce cost volatility; and
- Improve environmental performance including a reduction of greenhouse gas emissions.

CCAT will make itself available to the Committee and legislature upon request to assist in the refinement of this legislation.

Respectfully submitted,

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